67,200-207
TSMC 1-99-044

APPARATUS AND METHOD FOR COOLING A SEMICONDUCTOR SUBSTRATE

Abstract of the Disclosure

A cooling stage for a semiconductor substrate and a method for utilizing such cooling stage for improved cooling of a semiconductor substrate are provided. In the cooling stage, a pedestal that has a substantially planar top surface is equipped with a first plurality of circular grooves concentrically formed in the top surface and a second plurality of linear grooves formed in radial directions emanating from a center of the top surface in fluid communication with the first plurality of circular grooves to allow a cooling fluid to flow therethrough when a semiconductor substrate is positioned on the top surface of the stage. The present invention novel apparatus and method is effective in preventing wafer jump or wafer sticking problems frequently caused by an imbalance of thermal stresses in a top surface and a bottom surface of a wafer that is inadequately cooled on a cooling stage.